2009 Survey of

Community Drinking Water Systems

Cost of Water

Rate Structures

Water System Revenue

Infrastructure and Financial Condition

Division of Drinking Water
Utah Department of Environmental Quality

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UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY

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Forward

This document was prepared by staff of the Division of Drinking Water, Utah Department of Environmental Quality from data supplied by community drinking water systems within the State of Utah. If you have any questions or comments about this report or the survey please contact Michael Grange of the Division of Drinking Water at **mgrange@utah.gov** or by phone at (801)536-0069.

This document is also available from the Division's web site:

http://drinkingwater.utah.gov

Every effort has been made to present the data as completely and accurately as possible. However, due to the nature of the survey, data accuracy and completeness can not be assured and this report is presented on an "as-is" basis.

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Executive Summary

During 2009 there were 465 community water systems registered in the State of Utah. Community Water Systems were asked to complete the survey, either using the hard copy forms provided or using an online form. Completed survey forms and a database of responses to the on-line survey were forwarded to the Utah Division of Drinking Water. The data were analyzed and summarized for this report. A total of 299 systems responded to the survey. Seventy-eight systems filled out and returned the paper survey forms and 221 systems responded to the on-line survey.

Based on survey responses, the average consumer water bill in the State of Utah is **$44.58 per month per connection** and is comprised of direct periodic billings to consumers and annual property tax payments by consumers. Another measure of the cost of water is based on dollars per 1000 gallons. Survey results indicate that in Utah culinary water currently costs **$2.09 per 1000 gallons**. Impact fees, connection fees and other forms of system revenue are not included in the average water bill or unit cost calculations.

The average water bill of $44.58 per month per connection is 1.46% of the State Median Adjusted Gross Income (MAGI). This figure is based on the 2009 MAGI of $36,655.

Water systems responding to the survey reported receiving $467.65 million dollars in total revenue. This includes periodic billings, taxes, impact fees, connection fees, and other revenue. Other revenue sources identified in the survey include assessments, penalties, interest earned, and other fees.

User rate structures vary widely throughout the state. 176 systems responded to the water rate structure information request. Six systems reported that they employ a “uniform” rate structure. This means that the cost of water remains the same as water consumption increases. 170 systems (96.6%) reported employing an “increasing” rate structure, which means that the cost of water increases as consumption increases. This number is up from 51.3% in the 2006 survey.

Approximately 20% of survey respondents reported receiving sufficient revenue to establish reserve accounts for future infrastructure improvements or replacement. Another 67% reported that they met their annual expenses and had a balanced budget.

Survey responses indicate that 8.0% of water systems in the State of Utah are considered worn out or have significant immediate problems. Another 14.0% of systems are reported to be adequate for only another five years. Fire protection is reported as poor by 3.7% of survey respondents.

2009 Community Water System Survey Report

Introduction

The Utah Division of Drinking Water, in conjunction with the Utah Division of Water Rights and the Utah Division of Water Resources, conducts an annual survey of community drinking water systems within the state. This report presents the results of the 2009 Community Water System Survey.

A community drinking water system is defined as "a public drinking water system which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents." (See *Utah Administrative Rules* R309-100-4(2)(a))

In 2009, there were 465 registered community water systems in the State of Utah, serving a reported population of 2,728,189 residents. Of those 465 systems, 299 (64.3%) responded to the survey. These 299 systems serve a reported population of 2,099,777 residents, or 77.0% of residents served by community drinking water systems. Of the 299 respondents, 240 provided satisfactory responses to questions regarding water bill information and consumer costs. The 240 systems represent a reported 1,966,408 residents, or 72.1% of the population served by all registered community drinking water systems.

Typical Revenue Sources and Expenses

The financial objective of any public water system is to have enough revenue to cover operating expenses. It is also very desirable for a water system to have a capital reserve and replacement fund to cover the costs of infrastructure improvements. If the system happens to be a for-profit endeavor, providing a return on investment to shareholders is also an important consideration.

Table 1
Typical Water System Expenses

Operation & Maintenance
Source Supply
Pumping
Water Treatment
Transmission and Distribution
Customer Accounting
Administrative and General
Capital Requirements
Debt Service
Debt Service Reserve
Capital Improvements

Table 1, adapted from the American Water Works Association publication *Water Rates* (*Manual M1*, 2002) Table 1-1, identifies typical system expenses as published by AWWA. The US Government Accountability Office publication *Water Infrastructure – Information on Financing, Capital Planning, and Privatization* (GAO-02-764, 2002) identified a list of possible revenue sources, including grants and debt or equity funding sources, for water systems. This information is presented in Table 2.

While the data presented by GAO is somewhat dated, it represents the most recent national data on water system funding and revenue available.

Table 2
Estimated Percentages of Utilities
That Used Each Source of Funding
in Their Most Recently Completed Fiscal Year

1	User Charges	98%
	Other Local Revenues	
2	Hook-up, connection, or tap fees	89%
3	Interest Earned	77%
4	Sales to other utilities	42%
5	Permit and inspection fees	41%
6	Reserves	35%
7	Assessments	14%
8	Property taxes	8%
9	Special operating cost levies	3%
	Grants	
10	State grants	21%
11	Federal Grants	16%
	Debt and Equity	
12	Revenue bonds	36%
13	State loans	25%
14	General Obligation bonds	19%
15	Federal loans	12%
16	Commercial loans	9%
17	Private activity bonds	2%
18	Sale of stock	2%

The Community Water System Survey is an important source of information used to determine the average cost of drinking water to the consumer in the State of Utah. The average cost is defined as the charge to the consumer through periodic billings and annual property taxes, identified as Items 1 and 8 in Table 2.

Connection fees, impact fees and other such potential sources of water system revenue are not included in the calculation of "average consumer cost." Other studies and surveys, which describe the cost of supplying drinking water to the public, may use different methods to calculate that cost. If water cost information from different sources is used to compare the cost of water in Utah with other states or a national average, it is important to be aware of the possible differences in calculation methods to be sure the comparison is accurate and valid.

It is also important to understand that the cost of drinking water may not be directly linked to a specific supplier's capability as a water utility. There are many factors that

influence the final cost of drinking water supplied to the public and each system must be judged based on those factors that bear the most influence on it.

Average Consumer Cost

Based on survey results, the average consumer cost of drinking water for 2009 was **$44.58 per month per connection**. This cost includes the charge to consumers through periodic billings and taxes but does not include impact, connection or other assessment fees. Table 3 presents a history of average consumer cost of drinking water.

Table 3
Average Consumer Cost of Drinking Water
($ / month / connection)

Year	*Cost*
2009	$44.58
2006	$37.11
2001	$33.89
1996	$25.12
1991	$19.16

Please note that the average water cost presented in this report is determined only from periodic billings and taxes paid to drinking water systems. Consumers in several drinking water systems throughout the state are served by separate irrigation systems. The costs associated with these irrigation systems are not included in this survey nor are they used in calculating the average consumer cost of drinking water.

Appendix A presents the survey results used to calculate the average consumer cost of drinking water in the State of Utah for 2009. The information is broken out into different categories, based on the system's responses to the survey questions.

Average Water Bill as a Percent of Median Adjusted Gross Income

The Median Adjusted Gross Income (MAGI) is calculated from federal income tax returns except those that claim no deductions. The MAGI for 2009 is $36,655. The 2009 average monthly water bill of $44.58 equates to 1.46% of the State MAGI. Table 4 shows a history of average monthly water bill as a percent of MAGI.

Table 4
Average Water Bill
as a Percent of MAGI

Year	*% MAGI*
2009	1.46%
2006	1.20%
2001	1.25%
1996	1.13%
1991	1.12%

Water Cost per 1000 Gallons

Table 5
Cost per 1000 Gallons

Year	*Cost*
2009	$2.09
2006	$1.34
2001	$1.36

Another perspective on the cost of drinking water is provided when the cost is expressed in relation to the quantity used. Survey respondents were asked to identify the quantity of water used by consumers in their service area and to identify their annual revenue from those same consumers. Based on survey results, the average cost of drinking water per 1000 gallons consumed was calculated at $2.09. Table 5 presents a comparison of water costs per 1000 gallons. Current survey results are detailed in Appendix B.

Residential Water Rate Structures

Water rate structure information was provided by 176 survey respondents, 58.9% of total responses. Water rate structures throughout the state indicate how the cost of water paid by the consumer varies with the amount of water used by the consumer. Structures are labeled as:

> "**uniform**" if the cost of water remains the same no matter how much water is used;
> "**increasing**" if the cost of water goes up as consumption increases; and,
> "**decreasing**" if the cost of water goes down as consumption increases.

Those structures identified as "increasing" tend to encourage water conservation.

It is worthwhile to note that the type of rate structure is not dependent on the base rate charged by the system. Only the pricing trends of overage blocks, those charges for water consumption over a specified quantity of water, are considered when identifying the type of rate structure.

Table 6 presents a summary of rate structure results from the 2009 survey. For comparison purposes rate structure information from the 2006 survey is also provided.

Table 6
Water Rate Structures

	2009		***2006***	
Type	*# of Systems*	*% of Systems*	*# of Systems*	*% of Systems*
Uniform	6	3.4%	128	47.9%
Decreasing	0	0.0%	2	0.8%
Increasing	170	96.6%	137	51.3%

Appendix C contains a list of survey respondents and their reported rate structures.

Revenue Received by Drinking Water Systems

Figure 1 presents a summary of annual water system revenue as reported on the survey. The figure represents all revenue sources reported by survey respondents.

"Other" revenue sources reported most often by survey respondents include interest received, other fees, and penalties.

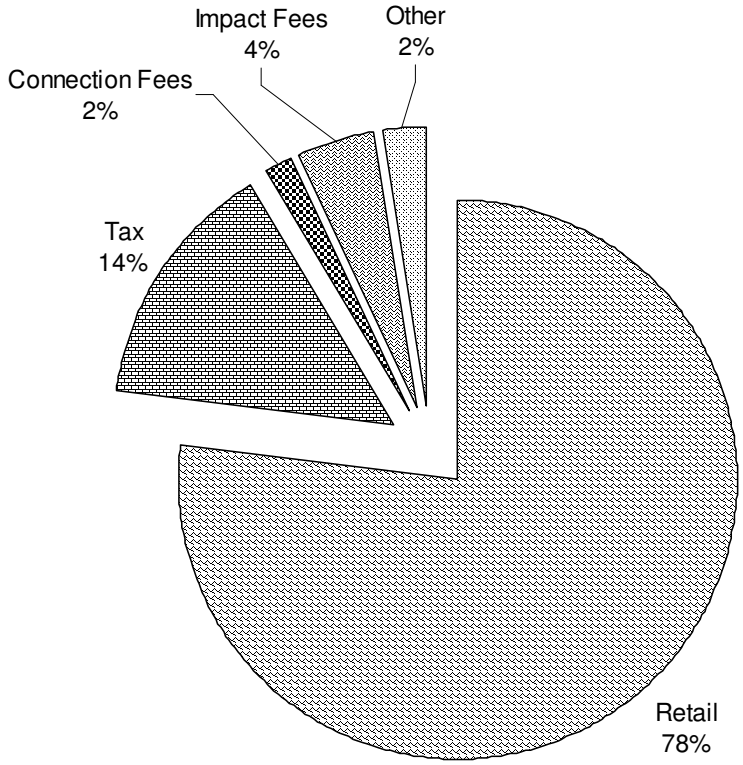

Figure 1
Revenue Received by Water Systems – by Type of Revenue

General Condition of Water Systems

Survey questions asked respondents to perform a self-evaluation of the financial and physical condition of their water system. Please refer to Appendix D for detailed information on survey responses.

The following highlights are noteworthy:

- 2% of survey respondents indicate their water systems operate in the red. Roughly half of these transfer money from other municipal funds to cover expenses, the other half plan to raise their rates to balance their budget.
- 19.7% of respondents report that their water system collects sufficient revenue, some of which is held in reserve for future improvements.
- 8% of respondents believe their water system is currently inadequate, worn out, or has significant immediate problems. While 21% report their system is adequate for the next 5 years.
- 23.7% of respondents report that their system has "poor" or "fair" fire protection capabilities.
- 13% of survey respondents indicated that their system regularly experiences leakage, with 1.3% reporting that their system is deteriorating.

Water Conservation and Management Plans

Utah law (73-10-32 Utah Code Annotated) requires all community water systems serving 500 or more connections to develop and implement a water conservation and management plan. These plans, which are submitted to the Utah Division of Water Resources, are to contain information such as, existing and proposed water conservation measures, a description of the measures a water system will use to reach it's conservation goals and the extent to which these measures will be used, and a clearly stated water use reduction goal and implementation plan for each conservation measure.

While not an integral part of the Community Water System Survey, Water Conservation and Management Plans are considered an important part of a water system's management and preparedness structure. The Utah Division of Drinking Water recommends that all Community Water Systems develop and implement a Water Conservation and Management Plan as part of any planning process for future system improvements or development.

A sample plan is available on the Internet at:

http://www.conservewater.utah.gov/agency/plans/OURCITY.pdf